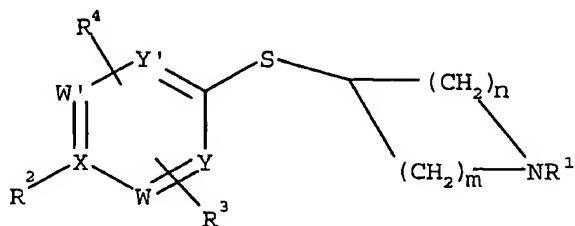


Claims:

1. A method of treatment of a condition indicating treatment with a beta 4 subtype selective nicotinic acetylcholine receptor modulator comprising administering an effective amount of a compound represented by Formula (I) or pharmaceutically acceptable salts thereof:

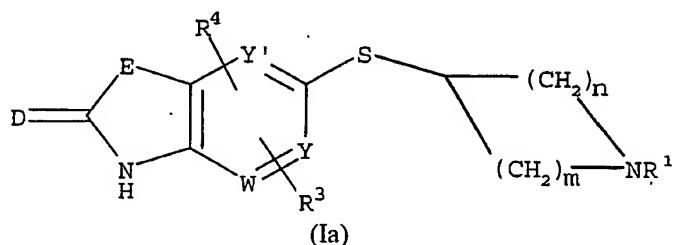


(I)

wherein:

- 10 R^1 is -H,
 C₁₋₁₂alkyl optionally substituted with 1, 2 or 3 groups independently selected from halogen, hydroxyl, thiol, C₁₋₄alkoxy or C₁₋₄alkylthio, or aryl-C₁₋₄alkyl;
- 15 R^2 is -H,
 -OH,
 -C(O)-NH₂,
 -NH₂,
 -NH-Q-V-T, wherein Q is -C(O)-, -C(O)-NH-, -C(O)O-, or -SO₂-;
 V is H, aryl, aryl-C₁₋₁₂alkyl, diaryl-C₁₋₁₂alkyl, lactonyl, or C₁₋₁₈alkyl optionally substituted with halogen, hydroxyl, C₁₋₄alkoxy, -C(O)OC₁₋₄alkyl, -OC(O)C₁₋₄alkyl, aryl-C₁₋₄alkoxy, aryloxy, or SO₂C₁₋₄alkyl; and
 T is H, halogen, C₁₋₅alkyl, C₁₋₄alkoxy, nitro, aryl, aryl-C₁₋₄alkyl, or aryloxy unless V is H in which case T is absent; or
- 20
- 25

linked back to the aromatic ring so as to form a fused bicyclic compound represented by Formula (Ia)



5

wherein D is O or S; and
 E is O, S, NR⁵, C(R⁵)₂, O-CR⁵₂, NR⁵-CR⁵₂,
 NR⁵-CO, CR⁵₂-O, CR⁵₂-S(O)_r, CR⁵₂-NR⁵,
 CR⁵₂-CR⁵₂, CO-NR⁵, or CR⁵=CR⁵;

unless X is N in which case R² is absent

10 R³ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

15 R⁴ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

R⁵ is each independently H or C₁₋₄alkyl;

X is C or N;

20 W is C or N;

W' is C or N;

Y is C or N;

Y' is C or N;

provided that there are no more than two N atoms in the aryl ring;

25 m is 1, 2, or 3;

n is 1, 2, or 3; and

the sum of m and n is 2, 3, 4, 5, or 6;

provided that

when X, W, W', Y and Y' are all C, R³ and R⁴ are H and R¹ is selected from H, unsubstituted C₁₋₄alkyl and unsubstituted C₃₋₄cycloalkyl, R² may not be -OH;
and that

- 5 when one of X, Y and Y' is N, R³ and R⁴ are H and R¹ is selected from H, unsubstituted C₁₋₄alkyl and unsubstituted C₃₋₄cycloalkyl, R² may not be H.

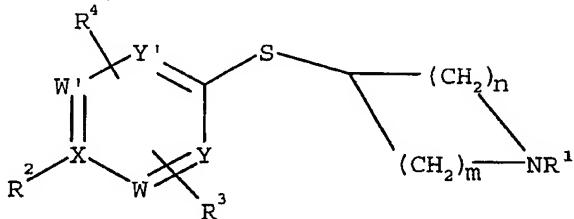
2. The method of claim 1

provided that

- 10 when X, W, W', Y and Y' are all C and R³ and R⁴ are H, R² may not be -OH;
and that

when one of X, Y and Y' is N and R³ and R⁴ are H, R² may not be H.

3. A method of treatment of dysfunctions of the central and autonomic nervous
15 systems comprising administering an effective amount of a compound represented by
Formula (I) or pharmaceutically acceptable salts thereof:



(I)

wherein:

- 20 R¹ is -H,
C₁₋₁₂alkyl optionally substituted with 1, 2 or 3 groups independently
selected from halogen, hydroxyl, thiol, C₁₋₄alkoxy or C₁₋₄alkylthio, or
aryl-C₁₋₄alkyl;
- R² is -H,
-OH,
-C(O)-NH₂,
- 25

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-NH₂,

-NH-Q-V-T, wherein

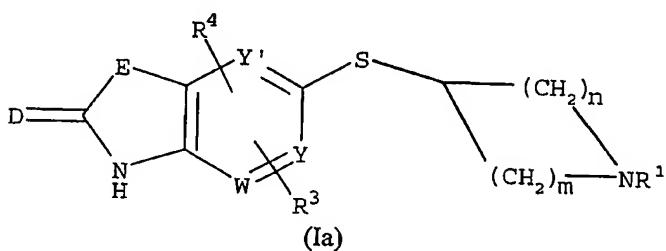
Q is -C(O)-, -C(O)-NH-, -C(O)O-, or -SO₂-;

V is H, aryl, aryl-C₁₋₁₂alkyl, diaryl-C₁₋₁₂alkyl, lactonyl, or C₁₋₁₈alkyl optionally substituted with halogen, hydroxyl, C₁₋₄alkoxy, -

C(O)OC₁₋₄alkyl, -OC(O)C₁₋₄alkyl, aryl-C₁₋₄alkoxy, aryloxy, or SO₂C₁₋₄alkyl; and

T is H, halogen, C₁₋₅alkyl, C₁₋₄alkoxy, nitro, aryl, aryl-C₁₋₄alkyl, or aryloxy unless V is H in which case T is absent; or

linked back to the aromatic ring so as to form a fused bicyclic compound represented by Formula (Ia)



15

wherein D is O or S; and

E is O, S, NR⁵, C(R⁵)₂, O-CR⁵₂, NR⁵-CR⁵₂, NR⁵-CO, CR⁵₂-O, CR⁵₂-S(O)_r, CR⁵₂-NR⁵, CR⁵₂-CR⁵₂, CO-NR⁵, or CR⁵=CR⁵;

unless X is N in which case R² is absent

20

R³ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

R⁴ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄alkyl,

25

aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

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- R⁵ is each independently H or C₁₋₄alkyl;
X is C or N;
W is C or N;
W' is C or N;
5 Y is C or N;
Y' is C or N;
provided that there are no more than two N atoms in the aryl ring;
m is 1, 2, or 3;
n is 1, 2, or 3; and
10 the sum of m and n is 2, 3, 4, 5, or 6;
provided that
when X, W, W', Y and Y' are all C and R³ and R⁴ are H, R² may not be -OH;
and that
when one of X, Y and Y' is N and R³ and R⁴ are H, R² may not be H;
15 and that
when R² is H, OH or NH₂ and R³ and R⁴ are H, R¹ may not be aryl-C₁₋₄alkyl.
4. The method of any one of claims 1 to 3 wherein
R¹ is -H, or
20 C₁₋₁₂alkyl optionally substituted with 1, 2 or 3 groups independently
selected from halogen, hydroxyl, thiol, C₁₋₄alkoxy or C₁₋₄alkylthio.
5. The method of any one of claims 1 to 4, wherein
R² is -H,
25 -C(O)-NH₂,
-NH₂,
-NH-Q-V-T as defined in claim 1; or
linked back to the aromatic ring so as to form a fused bicyclic compound
represented by Formula (Ia) as defined in claim 1;
30 unless X is N in which case R² is absent.
6. The method of any one of claims 1 to 5, wherein

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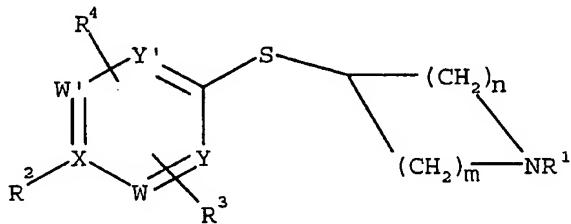
R^2 is $-C(O)-NH_2$,
 $-NH-Q-V-T$ as defined in claim 1; or
linked back to the aromatic ring so as to form a fused bicyclic compound
represented by Formula (Ia) as defined in claim 1;
5 unless X is N in which case R^2 is absent.

7. The method of any one of claims 1 to 6, wherein

R^2 is $-C(O)-NH_2$,
 $-NH-Q-V-T$, wherein Q is $-C(O)-NH-$, or $-C(O)O-$;
10 V is as defined in claim 1; and
T is as defined in claim 1; or
linked back to the aromatic ring so as to form a fused bicyclic compound
represented by Formula (Ia) as defined in claim 1;
unless X is N in which case R^2 is absent.

15

8. A compound of Formula (I) or pharmaceutically acceptable salts thereof for use in therapy:



(I)

20 wherein:

R^1 is $-H$,
 C_{1-12} alkyl optionally substituted with 1, 2 or 3 groups independently selected from halogen, hydroxyl, thiol, C_{1-4} alkoxy or C_{1-4} alkylthio, or aryl- $C1-4$ alkyl;
25 R^2 is $-H$,
 $-OH$,

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-C(O)-NH₂,

-NH₂,

-NH-Q-V-T, wherein

Q is -C(O)-, -C(O)-NH-, -C(O)O-, or -SO₂-;

V is H, aryl, aryl-C₁₋₁₂alkyl, diaryl-C₁₋₁₂alkyl,

lactonyl, or C₁₋₁₈alkyl optionally substituted

with halogen, hydroxyl, C₁₋₄alkoxy, -

C(O)OC₁₋₄alkyl, -OC(O)C₁₋₄alkyl, aryl-C₁₋

4alkoxy, aryloxy, or SO₂C₁₋₄alkyl; and

T is H, halogen, C₁₋₅alkyl, C₁₋₄alkoxy, nitro,

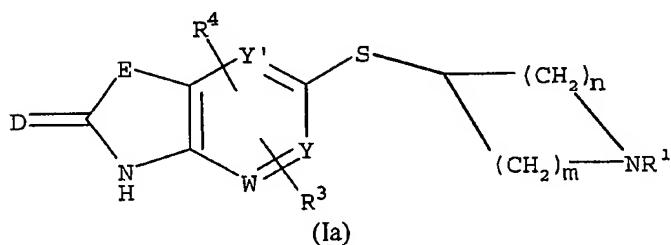
aryl, aryl-C₁₋₄alkyl, or aryloxy unless V is H

in which case T is absent; or

5

10

linked back to the aromatic ring so as to form a fused bicyclic compound represented by Formula (Ia)



15

wherein

D is O or S; and

E is O, S, NR⁵, C(R⁵)₂, O-CR⁵₂, NR⁵-CR⁵₂,

NR⁵-CO, CR⁵₂-O, CR⁵₂-S(O)_n, CR⁵₂-NR⁵,

CR⁵₂-CR⁵₂, CO-NR⁵, or CR⁵=CR⁵;

20

unless X is N in which case R² is absent

R³ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

25

R⁴ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀

-93-

R^1 is cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

R^5 is each independently H or C₁₋₄alkyl;

X is C or N;

5 W is C or N;

W' is C or N;

Y is C or N;

Y' is C or N;

provided that there are no more than two N atoms in the aryl ring;

10 m is 1, 2, or 3;

n is 1, 2, or 3; and

the sum of m and n is 2, 3, 4, 5, or 6;

provided that

when X, W, W', Y and Y' are all C and R³ and R⁴ are H, R² may not be -OH;

15 and that

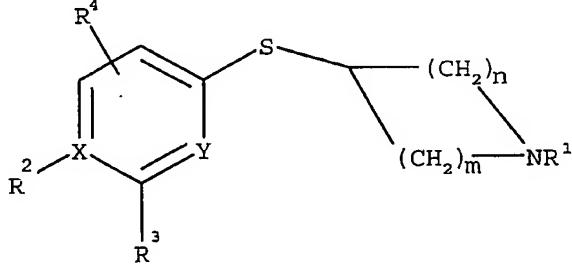
when one of X, Y and Y' is N and R³ and R⁴ are H, R² may not be H;

and that

when R² is H, OH or NH₂ and R³ and R⁴ are H, R¹ may not be aryl-C₁₋₄alkyl;

and excluding compounds represented by Formula I' or pharmaceutically acceptable salts

20 thereof:



(I')

wherein:

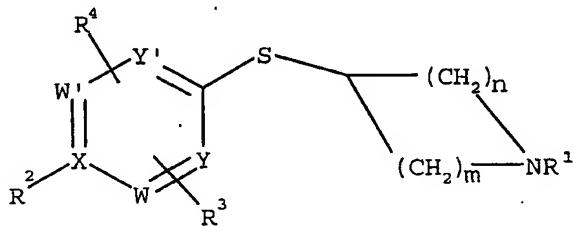
R¹, X, Y, m and n are as defined above

25 R² is -H,

- NH₂,
-NH-SO₂-V-T wherein V and T are as defined above;
unless X is N in which case R² is absent
R³ is H, halogen, C₁₋₄alkyl, -NH₂, NH-C₁₋₄alkyl, or hydroxy;
5 R⁴ is H, halogen, C₁₋₄alkyl, -NH₂, NH-C₁₋₄alkyl, or hydroxy.
9. A compound as claimed in claim 8 wherein
R¹ is -H, or
C₁₋₁₂alkyl optionally substituted with 1, 2 or 3 groups independently
10 selected from halogen, hydroxyl, thiol, C₁₋₄alkoxy or C₁₋₄alkylthio.
10. A compound as claimed in claim 8 or claim 9, wherein
R² is -H,
-C(O)-NH₂,
15 -NH₂,
-NH-Q-V-T as defined in claim 8; or
linked back to the aromatic ring so as to form a fused bicyclic compound
represented by Formula (Ia) as defined in claim 8;
unless X is N in which case R² is absent.
20
11. A compound as claimed in any one of claims 8 to 10, wherein
R² is -C(O)-NH₂,
-NH-Q-V-T as defined in claim 8; or
linked back to the aromatic ring so as to form a fused bicyclic compound
25 represented by Formula (Ia) as defined in claim 8;
unless X is N in which case R² is absent.
12. A compound as claimed in any one of claims 8 to 11, wherein
R² is -C(O)-NH₂,
-NH-Q-V-T, wherein Q is -C(O)-NH-, or -C(O)O-;
30 V is as defined in claim 8; and
T is as defined in claim 8; or

linked back to the aromatic ring so as to form a fused bicyclic compound represented by Formula (Ia) as defined in claim 8; unless X is N in which case R² is absent.

- 5 13. A compound represented by Formula (I) or pharmaceutically acceptable salts thereof:

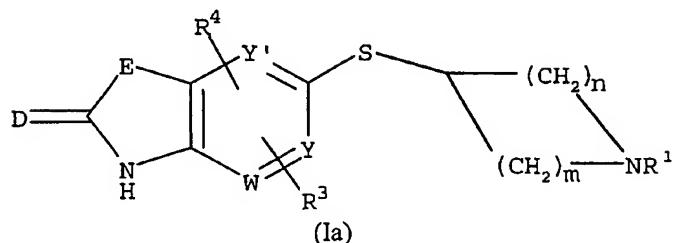


(I)

wherein:

- 10 R¹ is -H,
C₁₋₁₂alkyl optionally substituted with 1, 2 or 3 groups independently selected from halogen, hydroxyl, thiol, C₁₋₄alkoxy or C₁₋₄alkylthio, or aryl-C₁₋₄alkyl;
- 15 R² is -H,
-OH,
-C(O)-NH₂,
-NH₂,
-NH-Q-V-T, wherein Q is -C(O)-, -C(O)-NH-, -C(O)O-, or -SO₂-; V is H, aryl, aryl-C₁₋₁₂alkyl, diaryl-C₁₋₁₂alkyl, lactonyl, or C₁₋₁₈alkyl optionally substituted with halogen, hydroxyl, C₁₋₄alkoxy, -C(O)OC₁₋₄alkyl, -OC(O)C₁₋₄alkyl, aryl-C₁₋₄alkoxy, aryloxy, or SO₂C₁₋₄alkyl; and T is H, halogen, C₁₋₅alkyl, C₁₋₄alkoxy, nitro, aryl, aryl-C₁₋₄alkyl, or aryloxy unless V is H in which case T is absent; or
- 20
- 25

linked back to the aromatic ring so as to form a fused bicyclic compound represented by Formula (Ia)



5

wherein D is O or S; and
 E is O, S, NR⁵, C(R⁵)₂, O-CR⁵₂, NR⁵-CR⁵₂,
 NR⁵-CO, CR⁵₂-O, CR⁵₂-S(O)_r, CR⁵₂-NR⁵,
 CR⁵₂-CR⁵₂, CO-NR⁵, or CR⁵=CR⁵;

unless X is N in which case R² is absent

10

R³ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

15

R⁴ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

20

R⁵ is each independently H or C₁₋₄alkyl;

X is C or N;

W is C or N;

W' is C or N;

Y is C or N;

Y' is C or N;

provided that there are no more than two N atoms in the aryl ring;

25

m is 1, 2, or 3;

n is 1, 2, or 3; and

the sum of m and n is 2, 3, 4, 5, or 6;

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provided that

when X, W, W', Y and Y' are all C and R³ and R⁴ are H, R² may not be -OH;

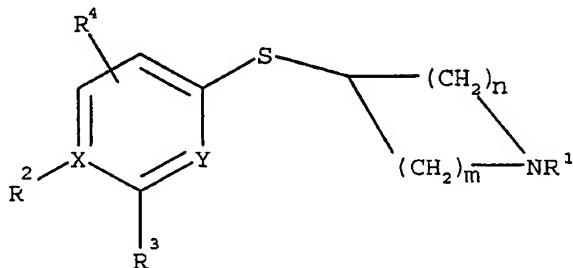
and that

when one of X, Y and Y' is N and R³ and R⁴ are H, R² may not be H;

5 and that

when R² is H, OH or NH₂ and R³ and R⁴ are H, R¹ may not be aryl-C1-4alkyl;

and excluding compounds represented by Formula I'' or pharmaceutically acceptable salts thereof:



10

(I'')

wherein:

R¹, X, Y, m and n are as defined above

R² is -H,

-NH₂,

15

-NH-Q-V-T, wherein Q is -C(O)- or -SO₂- and

V and T are as defined above;

unless X is N in which case R² is absent

R³ is H, halogen, C₁₋₄alkyl, OC₁₋₄alkyl, -NH₂, NH-C₁₋₄alkyl, or hydroxy;

R⁴ is H, halogen, C₁₋₄alkyl, OC₁₋₄alkyl, CO₂H, -NH₂, NH-C₁₋₄alkyl, or hydroxy.

20

14. A compound as claimed in claim 13 wherein

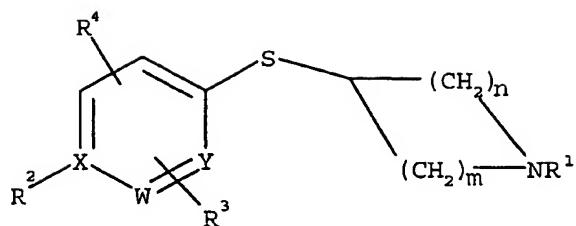
R¹ is -H, or

C₁₋₁₂alkyl optionally substituted with 1, 2 or 3 groups independently selected from halogen, hydroxyl, thiol, C₁₋₄alkoxy or C₁₋₄alkylthio.

25

15. A compound as claimed in claim 13 or claim 14, wherein
R² is -H,
-C(O)-NH₂,
-NH₂,
5 -NH-Q-V-T as defined in claim 13; or
linked back to the aromatic ring so as to form a fused bicyclic compound
represented by Formula (Ia) as defined in claim 13;
unless X is N in which case R² is absent.
- 10 16. A compound as claimed in any one of claims 13 to 15, wherein
R² is -C(O)-NH₂,
-NH-Q-V-T as defined in claim 13; or
linked back to the aromatic ring so as to form a fused bicyclic compound
represented by Formula (Ia) as defined in claim 13;
15 unless X is N in which case R² is absent.
17. A compound as claimed in any one of claims 13 to 16, wherein
R² is -C(O)-NH₂,
-NH-Q-V-T, wherein Q is -C(O)-NH-, or -C(O)O-;
20 V is as defined in claim 13; and
T is as defined in claim 13; or
linked back to the aromatic ring so as to form a fused bicyclic compound
represented by Formula (Ia) as defined in claim 13;
unless X is N in which case R² is absent.
- 25 18. A compound as claimed in claim 13 which is represented by Formula (II) or
pharmaceutically acceptable salts thereof:

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wherein:

- R^1 is -H; or
5 C_{1-12} alkyl optionally substituted with 1, 2 or 3 groups
independently selected from halogen, hydroxyl, thiol, C_{1-4} alkoxy or C_{1-4} alkylthio; or
aryl- C_{1-4} alkyl;
- R^2 is -H;
-OH;
10 -C(O)-NH₂
-NH₂;
-NH-Q-V-T
- Q is -C(O)-;
-C(O)-NH-;
15 -C(O)O-; or
-SO₂-
- V is aryl;
aryl- C_{1-12} alkyl;
diaryl- C_{1-12} alkyl;
20 lactonyl; or
 C_{1-18} alkyl optionally substituted with halogen, hydroxyl, C_{1-4} alkoxy, -C(O)OC₁₋₄ alkyl, -OC(O)C₁₋₄ alkyl, aryl- C_{1-4} alkoxy, aryloxy, SO₂C₁₋₄ alkyl;
- T is H;
halogen;
25 aryl;
aryl- C_{1-4} alkyl; or
aryloxy;

-100-

unless X is N in which case R² is absent

R³ and R⁴ are each independently selected from H, halogen, C₁₋₄ alkyl, cyano, CF₃, OC₁₋₄ alkyl, aryloxy, arylC₁₋₄alkoxy, C₃₋₁₀ cycloalkoxy, carboxy, carbonamido, -CO-, -CO₂H, -NH₂, NH-C₁₋₄ alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄

5 alkyl, -C₁₋₄ alkyl-OH;

X is C or N;

W is C or N, provided that both X and Y are not N;

Y is C or N

m is 1, 2, or 3;

10 n is 1, 2, or 3; and

the sum of m and n is 2, 3, 4, 5, or 6.

19. A compound as claimed in claim 18 wherein R¹ is H; C₁₋₆ alkyl optionally substituted with 1 or 2 hydroxyl groups; or aryl-C₁₋₄ alkyl.

15

20. A compound as claimed in claim 19 wherein R¹ is benzyl, p-methoxybenzyl, furanylmethyl, imidazolylmethyl, pyridinylmethyl, thienylmethyl, pyridylmethyl, N-hydroxypyridylmethyl or thiazolylmethyl.

20

21. A compound as claimed in any one of claims 18 to 20 wherein R² is H, R³ is carbonamido (-CONH₂) or C₁₋₄ alkyl-OH, and R⁴ is H, C₁₋₄alkyl, CF₃, halogen or cyano.

22. A compound as claimed in any one of claims 18 to 20 wherein R² is OH, and R³ and R⁴ each independently represent H, C₁₋₄alkyl, CF₃, cyano or halogen.

25

23. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula - NH-Q-V-T; T is H and R³ and R⁴ each independently represent H, methyl, CF₃, chloro- or cyano-.

30

24. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula - NH-SO₂-V-T; V is aryl, -C₁₋₁₂ alkyl or aryl-C₁₋₁₂ alkyl; R₃ is H, methyl, CF₃, Cl or cyano and R⁴ is H.

25. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-SO₂-V-T, V is selected from C₁₋₁₂ alkyl, phenyl, naphthyl, thienyl, oxazolyl, isoxazolyl, or phenyl(CH=CH)–, optionally substituted with 1, 2, 3 or 4 substituents
5 selected from:
- NO₂;
halogen;
-CF₃;
C₁₋₁₂ alkoxy;
10 C₁₋₁₂ alkylthio;
C₁₋₁₂ alkyl;
C₁₋₄ alkylsulfonyl;
-CN;
-OCF₃;
15 -C(O)OC₁₋₄ alkyl;
-OCH₂CF₃;
-NHC(O) C₁₋₄ alkyl.
26. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-SO₂-V-T, T is selected from H; or diazole, oxazole, isoxazole, phenyl or phenoxy, optionally substituted with 1, 2, 3 or 4 substituents selected from
20
- NO₂;
halogen;
-CF₃;
25 C₁₋₁₂ alkoxy;
C₁₋₁₂ alkylthio;
C₁₋₁₂ alkyl;
C₁₋₄ alkylsulfonyl;
-CN;
30 -OCF₃;
-C(O)OC₁₋₄ alkyl;
-OCH₂CF₃;

-NHC(O) C₁₋₄ alkyl.

27. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-SO₂-V-T, V is selected from 3-chloro-4-methylphenyl, 3-chlorophenyl, 3-methoxyphenyl, 4-bromophenyl, 4-methoxyphenyl, 4-methylphenyl, naphthyl, 2,4,6-trimethylphenyl, phenyl(CH=CH)-, 4-chlorophenyl, 2-chlorophenyl, 2,5-dichlorothien-3-yl, 2,5,6-trimethyl-4-methoxyphenyl, 4-methoxyphenyl, 2,3,4-trifluorophenyl, 3-cyanophenyl, 2-methoxycarbonylthien-3-yl or 4-pentylphenyl and T is H.
- 10 28. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-SO₂-V-T, T is 2-chloro-5-nitrophenoxy and V is phenyl.
29. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-C(O)-V-T wherein V is selected from
- 15 aryl;
aryl-C₁₋₁₂ alkyl;
 diaryl-C₁₋₁₂ alkyl;
 lactonyl; or
 C₁₋₁₈ alkyl optionally substituted with halogen, hydroxyl, C₁₋₄ alkoxy, C(O)OC₁₋₄ alkyl, OC(O)C₁₋₄ alkyl, aryl-C₁₋₄ alkoxy, aryloxy.
- 20 30. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-C(O)-V-T, and V is selected from C₁₋₁₂ alkyl, phenyl, phenyl-C₁₋₁₂ alkyl, diphenylmethyl, naphthyl, furanyl, thienyl, diazolyl, pyridinyl, thiazolyl, benzothienyl, fluorenyl, oxazolyl or isoxazolyl, optionally substituted with 1, 2, 3 or 4 substituents independently selected from
- NO₂;
halogen;
-CF₃;
- 30 C₁₋₁₂ alkoxy;
C₁₋₁₂ alkylthio;
C₁₋₁₂ alkyl;
C₁₋₄ alkylsulfonyl;

-CN;
-OCF₃;
-C(O)O-C₁₋₄ alkyl;
-OCH₂CF₃.

5

31. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-C(O)-V-T, T is selected from

H;
halogen; or

10 diazole, oxazole, isoxazole, phenyl, phenoxy or benzodioxanyl optionally substituted with 1, 2, 3 or 4 substituents selected from

-NO₂;
halogen;
-CF₃;
15 C₁₋₁₂ alkylthio;
C₁₋₁₂ alkoxy;
C₁₋₁₂ alkyl;
C₁₋₄ alkylsulfonyl;
-CN;
20 -OCF₃;
-C(O)O-C₁₋₄ alkyl.

32. A compound as claimed in any one of Claims 18 to 20 wherein R² is of formula – NH-C(O)N-V-T wherein V is selected from

25 C₁₋₁₈ alkyl optionally substituted with halogen, hydroxyl, C₁₋₄ alkoxy, C(O)OC₁₋₄ alkyl, OC(O)C₁₋₄ alkyl, aryl-C₁₋₄ alkoxy, aryloxy;
aryl; or
aryl-C₁₋₁₂ alkyl.

30 33. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-C(O)NH-V-T, V is selected from phenyl, phenyl-C₁₋₁₂ alkyl or naphthyl optionally substituted with 1, 2, 3 or 4 substituents selected from

-NO₂;
halogen;
-CF₃;
C₁₋₁₂ alkylthio;
5 C₁₋₁₂ alkoxy;
C₁₋₁₂ alkyl;
C₁₋₄ alkylsulfonyl;
-CN;
-OCF₃;
10 -C(O)O-C₁₋₄ alkyl.

34. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula – NH-C(O)O-V-T, wherein V is selected from

C₁₋₁₈ alkyl optionally substituted with halogen, hydroxyl, C₁₋₄ alkoxy,
15 C(O)OC₁₋₄ alkyl, OC(O)C₁₋₄ alkyl, aryl-C₁₋₄ alkoxy, aryloxy;
aryl; or
aryl-C₁₋₁₂ alkyl.

35. A compound as claimed in any one of claims 18 to 20 wherein R² is of formula –
20 NH-C(O)O-V-T, preferably V is selected from phenyl or phenyl-C₁₋₁₂ alkyl optionally substituted with 1, 2, 3 or 4 substituents selected from

-NO₂;
halogen;
-CF₃;
25 C₁₋₁₂ alkylthio;
C₁₋₁₂ alkoxy;
C₁₋₁₂ alkyl;
C₁₋₄ alkylsulfonyl;
-CN;
30 -OCF₃;
-C(O)O-C₁₋₄ alkyl; or
-OCH₂CF₃.

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36. A compound as claimed in claim 13 wherein R^2 is formula $-\text{NH}-\text{C}(\text{O})-\text{V}-\text{T}$
wherein V is H, $C_{1-6}\text{alkyl}$, $C_{3-6}\text{cycloalkyl}$, aryl or aryl- $C_{1-12}\text{alkyl}$; and
 T is H, halogen, $C_{1-5}\text{alkyl}$, $C_{1-4}\text{alkoxy}$, nitro, aryl, aryl- $C_{1-4}\text{alkyl}$, or aryloxy
unless V is H in which case T is absent.

5

37. A compound as claimed in claim 36
wherein V is H, $C_{1-6}\text{alkyl}$ or $C_{3-6}\text{cycloalkyl}$, and
 T is H unless V is H in which case T is absent.

10 38. A compound as claimed in claim 36

wherein V is aryl or aryl- $C_{1-12}\text{alkyl}$, and
 T is H, halogen, $C_{1-5}\text{alkyl}$, $C_{1-4}\text{alkoxy}$, nitro, aryl, aryl- $C_{1-4}\text{alkyl}$, or aryloxy.

39. A compound as claimed in claim 38

15 wherein V is phenyl, pyridyl, thienyl, thiazolyl, thiadiazolyl, or phenyl- $C_{1-6}\text{alkyl}$;
and
 T is H, halogen, $C_{1-5}\text{alkyl}$, $C_{1-4}\text{alkoxy}$, nitro, aryl, aryl- $C_{1-4}\text{alkyl}$, or aryloxy.

40. A compound as claimed in claim 13

20 wherein

R^1 is -H,
 $C_{1-12}\text{alkyl}$ optionally substituted with 1, 2 or 3 groups independently
selected from halogen, hydroxyl, thiol, $C_{1-4}\text{alkoxy}$ or $C_{1-4}\text{alkylthio}$, or
aryl- $C_{1-4}\text{alkyl}$;

25 R^2 is $-\text{NH}_2$, or
 $-\text{NH}-\text{Q}-\text{V}-\text{T}$, wherein Q is $-\text{C}(\text{O})-$, $-\text{C}(\text{O})-\text{NH}-$, $-\text{C}(\text{O})\text{O}-$, or $-\text{SO}_2-$;
 V is H, aryl, aryl- $C_{1-12}\text{alkyl}$, diaryl- $C_{1-12}\text{alkyl}$,
lactonyl, or $C_{1-18}\text{alkyl}$ optionally substituted
with halogen, hydroxyl, $C_{1-4}\text{alkoxy}$, $-\text{C}(\text{O})\text{OC}_{1-4}\text{alkyl}$, $-\text{OC}(\text{O})\text{C}_{1-4}\text{alkyl}$, aryl- $C_{1-4}\text{alkoxy}$, aryloxy, or $\text{SO}_2\text{C}_{1-4}\text{alkyl}$; and

30

T is H, halogen, aryl, aryl-C₁₋₄alkyl, or aryloxy unless V is H in which case T is absent,

- 5 R³ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;
- 10 R⁴ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;
- 15 X is C;
W is C or N;
W' is C or N;
Y is C or N;
Y' is C or N;
- provided that there are not more than two N atoms in the aryl ring and provided that at least one of W, W', Y or Y' is N;
- m is 1, 2, or 3;
- 20 n is 1, 2, or 3; and
the sum of m and n is 2, 3, 4, 5, or 6.

41. A compound as claimed in claim 40

wherein

- 25 W is C;
W' is C;
Y' is C; and
Y is N.

30 42. A compound as claimed in claim 40

wherein

- W is N;

W' is C;
Y' is C; and
Y is C.

5 43. A compound as claimed in any one of claims 40 to 42
wherein

R² is -NH₂.

44. A compound as claimed in any one of claims 40 to 42
10 wherein

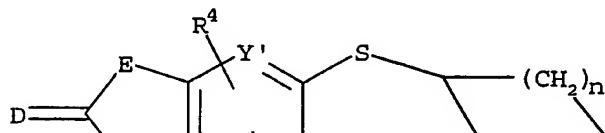
R² is -NH-Q-V-T, wherein Q is -C(O)-, -C(O)-NH-, -C(O)O-, or -SO₂-; V is H, aryl, aryl-C₁₋₁₂alkyl, diaryl-C₁₋₁₂alkyl, lactonyl, or C₁₋₁₈alkyl optionally substituted with halogen, hydroxyl, C₁₋₄alkoxy, -C(O)OC₁₋₄alkyl, -OC(O)C₁₋₄alkyl, aryl-C₁₋₄alkoxy, aryloxy, or SO₂C₁₋₄alkyl; and T is H, halogen, aryl, aryl-C₁₋₄alkyl, or aryloxy unless V is H in which case T is absent.

20 45. A compound as claimed in claim 44
wherein

Q is -SO₂- or -CO-.

25 46. A compound as claimed in Claim 13
wherein:

R¹ is -H,
C₁₋₁₂alkyl optionally substituted with 1, 2 or 3 groups independently selected from halogen, hydroxyl, thiol, C₁₋₄alkoxy or C₁₋₄alkylthio, or
30 aryl-C₁₋₄alkyl;
R² is linked back to the aromatic ring so as to form a fused bicyclic compound



represented by Formula (Ia)

(Ia)

wherein D is O or S; and

5 E is O, S, NR⁵, or C(R⁵)₂,

R³ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

10 R⁴ is H, halogen, C₁₋₄alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF₃, OC₁₋₄alkyl, aryloxy, arylC₁₋₄alkyl, arylC₁₋₄alkoxy, C₃₋₁₀cycloalkoxy, carboxy, carbonamido, -CO-NH-C₁₋₄alkyl, aryl, hydroxy, -SO₂NH₂, -SO₂NHC₁₋₄alkyl, or -C₁₋₄alkyl-OH;

R⁵ is each independently H or C₁₋₄alkyl;

15 X is C;

W is C or N;

W' is C;

Y is C or N;

Y' is C or N;

20 provided that there are no more than two N atoms in the aryl ring,

m is 1, 2, or 3;

n is 1, 2, or 3; and

the sum of m and n is 2, 3, 4, 5, or 6.

25 47. A compound as claimed in Claim 46 wherein E is O or NR⁵.

48. A compound as claimed in Claim 46 or 47 wherein R⁵ is/are each independently H or C₁₋₄alkyl.

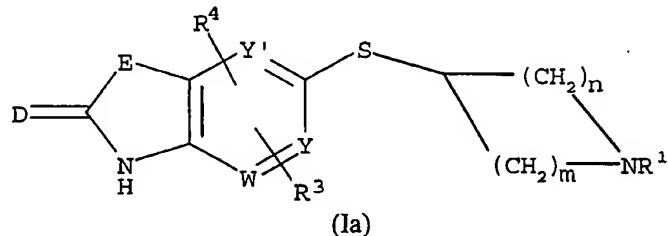
30 49. A compound as claimed in Claim 13

wherein:

R¹ is -H,

C_{1-12} alkyl optionally substituted with 1, 2 or 3 groups independently selected from halogen, hydroxyl, thiol, C_{1-4} alkoxy or C_{1-4} alkylthio, or aryl- C_{1-4} alkyl;

5 R^2 is linked back to the aromatic ring so as to form a fused bicyclic compound represented by Formula (Ia)



wherein D is O or S; and

10 E is $O-CR^5_2$, $NR^5-CR^5_2$, NR^5-CO , CR^5_2-O , $CR^5_2-S(O)_r$, $CR^5_2-NR^5$, $CR^5_2-CR^5_2$, CO-
NR⁵, or $CR^5=CR^5$;

15 R^3 is H, halogen, C_{1-4} alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF_3 , OC_{1-4} alkyl, aryloxy, aryl C_{1-4} alkyl, aryl C_{1-4} alkoxy, C_{3-10} cycloalkoxy, carboxy, carbonamido, -CO-NH- C_{1-4} alkyl, aryl, hydroxy, - SO_2NH_2 , - SO_2NHC_{1-4} alkyl, or - C_{1-4} alkyl-OH;

20 R^4 is H, halogen, C_{1-4} alkyl optionally substituted with from 1 to 3 fluorine atoms, cyano, CF_3 , OC_{1-4} alkyl, aryloxy, aryl C_{1-4} alkyl, aryl C_{1-4} alkoxy, C_{3-10} cycloalkoxy, carboxy, carbonamido, -CO-NH- C_{1-4} alkyl, aryl, hydroxy, - SO_2NH_2 , - SO_2NHC_{1-4} alkyl, or - C_{1-4} alkyl-OH;

25 R^5 is each independently H, C_{1-4} alkyl;

X is C;

W is C or N;

W' is C;

Y is C or N;

Y' is C or N;

provided that there are no more than two N atoms in the aryl ring;

m is 1, 2, or 3;

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n is 1, 2, or 3; and
the sum of m and n is 2, 3, 4, 5, or 6.

50. A compound as claimed in Claim 49 wherein E is O-CR⁵₂, NR⁵-CR⁵₂, NR⁵-CO,
5 CR⁵₂-CR⁵₂, or CR⁵=CR⁵.

51. A compound as claimed in Claim 49 or 50 wherein E is O-CR⁵₂, NR⁵-CO, or
CR⁵=CR⁵.

10 52. A compound as claimed in any one of Claims 49 to 51 wherein R⁵ is/are each
independently H or C₁₋₄alkyl.

53. A compound as claimed in any one of claims 18 to 35 wherein m is 2 and n is 1, 2
or 3.

15 54. A compound as claimed in any one of claims 18 to 35 wherein m is 2 and n is 2.

55. A compound as claimed in any one of claims 18 to 35 wherein X, Y and W are C.

20 56. A compound as claimed in any preceding claim wherein R¹ is H or C₁₋₃alkyl.

57. A pharmaceutical composition comprising a compound as claimed in any one of
claims 8 to 56 with a pharmaceutically acceptable diluent or carrier.

25